Somatic-Vegetative Symptoms of Depression Predict 6-Year Increases in Insulin Resistance: Data from the Pittsburgh Healthy Heart Project

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Although prospective studies suggest a bidirectional association between depression and type 2 diabetes, few studies have examined depressive symptom clusters or concurrently evaluated both directions of this relationship. Consequently, our objective was to examine the longitudinal, bidirectional associations between the somatic-vegetative and cognitive-affective clusters of depressive symptoms and insulin resistance, which is implicated in the pathophysiology of type 2 diabetes. Participants were 269 adults (baseline age range: 50-70 years, 55% female, 14% non-white) without diabetes enrolled in the Pittsburgh Healthy Heart Project, a prospective cohort study. At baseline and the 6-year visits, participants completed the Beck Depression Inventory-II (BDI-II) to assess depressive symptoms and underwent a blood draw to quantify fasting serum insulin and glucose. We examined baseline BDI-II total and subscale scores as predictors of 6-year change in the homeostatic model assessment (HOMA) score, an index of insulin resistance computed from fasting insulin and glucose. We also examined baseline HOMA score as a predictor of 6-year change in BDI-II total and subscale scores. HOMA and BDI-II change were computed as follow-up score minus baseline score. Regression analyses, adjusted for baseline HOMA score and demographic factors, revealed that the baseline BDI-II somatic-vegetative score (beta=.14, p=.03), but not the total (beta=.10, p=.11) or cognitive-affective (beta=.004, p=.95) scores, was a predictor of 6-year increases in the HOMA score. The pattern of results was similar after further adjustment for body mass index, except that the BDI-II total score became a predictor of HOMA change (beta=.13, p=.03). In contrast, the baseline HOMA score did not predict 6-year change in BDI-II total, somatic-vegetative, or cognitive-affective scores (all p's>.48). Our findings indicate that older adults experiencing the somatic-vegetative symptoms of depression (e.g., fatigue, sleep disturbance, and appetite changes) may be at an increased risk of insulin resistance and subsequent type 2 diabetes.

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